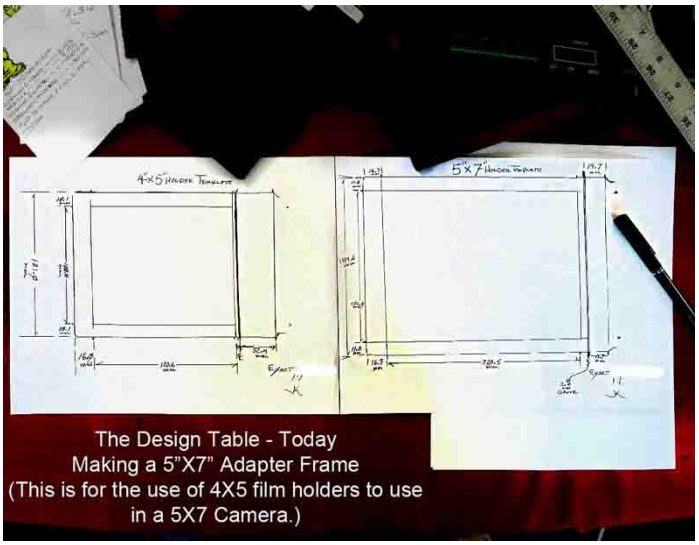
The Making of a Simple 5"X7" To A 4"X5" Adapter

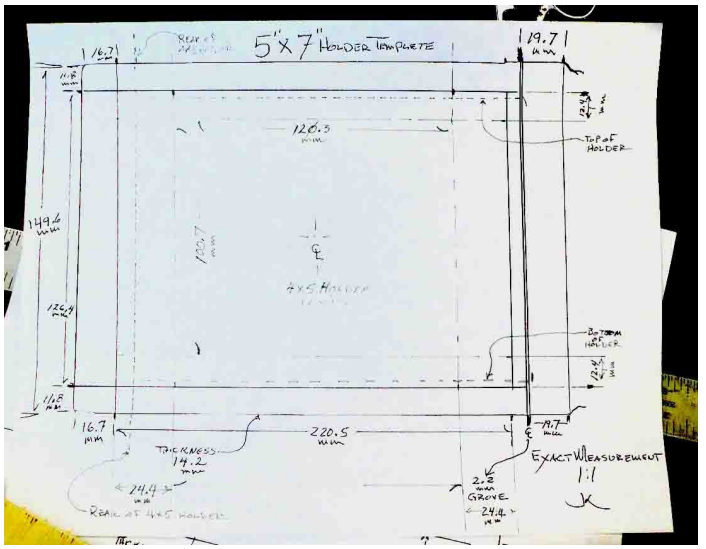
(*The Build For A Burke & James "Watson" 5"X7" Camera*)

Because I have a 5X7 inch large format camera, and a 4X5 inch camera I wanted to have an "*Adapter Frame*", whereby I could make use of the 4X5 holders in the 5X7. And because I just like to build almost anything that I want - or want to try to build. So I thought up a "slide-in" adapter fame to accept 4X5 holders. It was not very difficult as it only took a little thinking and planing. The only "problem" that I might encounter would be the exact focal distance to match each. So, once again, I heard my father's voice, as I usually do when making things. "*Measure TWICE – Cut ONCE*."

– And So, began the build.

Being that I usually do not make drawings of most of what I build, I thought that this time I would do that, not only to get a clear idea of what I want – but to show others in a written article, so that they too might know just exactly what I did.



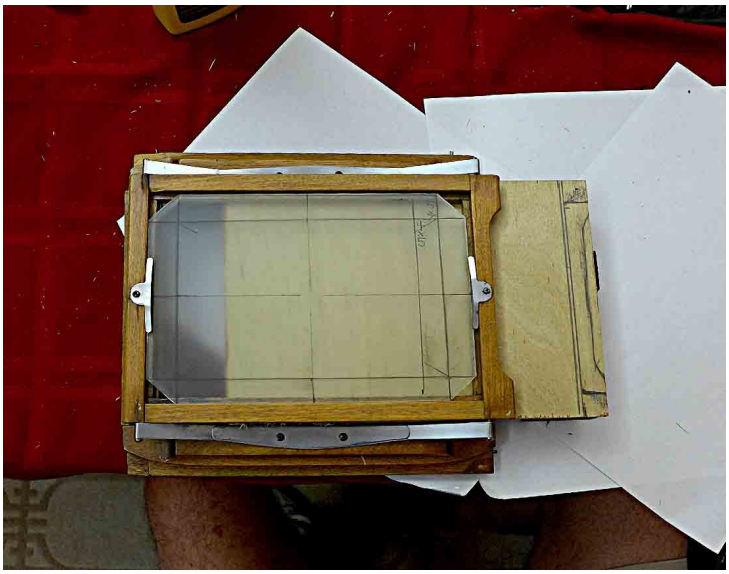


(*Shown above are the outlines and more detailed with measurements in Millimeters*.)

I took a 5X7 holder and placed it on a sheet of paper, then, with a pen, marked around the outside of that holder. Then, did the same thing with a 4X5 holder. Using a digital caliber, I took exact measurement of the places I needed to know about fitting these two templets together as one unit. The thickness of these two holders were quite similar - only a little shim would be needed to have to focal distance the exact same. Now, I knew that I would be able to focus on the existing ground glass on the camera for BOTH the 5X7 and the 4X5 holders to attain a sharply focused image.

The selection of the wood was simple. I had a good amount of 3/8 inch plywood underlayment in my "scrap" storage area to complete this build - with plenty leftover for other projects to come. And, by laminating three together it was the same thickness of the 5X7 holder.

(**Above** is the cutout basic frame of the adapter.) **To the Right** ----------> I decided to put a back on the frame so as to keep out ambient light from entering the rear of the camera, and to, hold fermly the 4X5 holders in their place while making an exposure. You see that these parts are a little rough in their state here – This was for only checking the fits. (Not seen here, on the inside of where the edges of the holder make contact with the adapter frame, I placed two "*runners*" of sticky-back Felt cloth. I did this to help seal out light from entering "separations" between the frame and the holder. This back will be glued to the frame.)

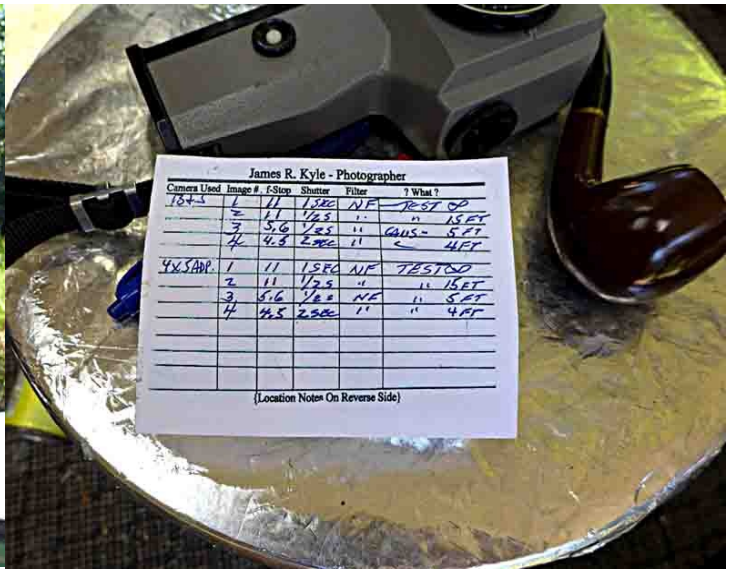


<---------- **To the Left** – this is to show the way the frame, with the holder, fits into the focal plane.

As the frame in placed into the focal plane, the ground glass moves back, however, the distance from the "film" is the same as it was with the ground glass in-place. Therefore, there is no refocusing to do, and the image will be sharp as it was on the glass.

As compared to manufactured 5X7 to 4X5 "*Reducing Backs*", this option is good for the person that wants to make things. The design is very straightforward - the build is so easy that almost anyone can do it. The only critical thing would be to make sure that the focal distance between the 5X7 and the 4X5 holders be EXACTLY the SAME.

Now comes the testing to make sure that the paper negatives will be in complete focus.


James R. Kyle - Photographer
Camera Used | Image # | f-Stop | Shutter | Filter | ? What ?
5X7 | 1 | 11 | 1 SEC | NF | TEST
2 | 11 | 1/25 | " | " 15 FT
3 | 5.6 | 1/25 | " | GLASS - 5 FT
4 | 4.5 | 2 SEC | " | " 4 FT
4X5 ADP. | 1 | 11 | 1 SEC | NF | TEST
2 | 11 | 1/25 | " | " 15 FT
3 | 5.6 | 1/25 | NF | " 5 FT
4 | 4.5 | 2 SEC | " | " 4 FT
(Location Notes On Reverse Side)

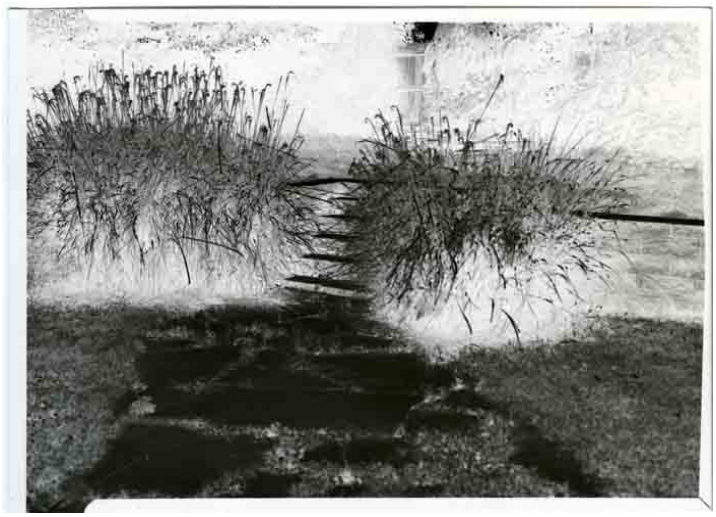
The Paper used to make these TEST images was “Arista-EDU VC/RC” at the ISO of Six (6). *Camera used was a Burke & James 5X7 with a ILEX - 8.5 Inch Paragon Anastigmat f-4.5 Lens / #4 Acme Synchro shutter*.

Shown Above - 5X7 / f-11@ 1 Sec (The positive)

Shown Above - the 4X5 Using the Adapter (The Positive)

NOTE:

In all examples in this test, the Settings or the 4X5's are the exact same as the 5X7's.



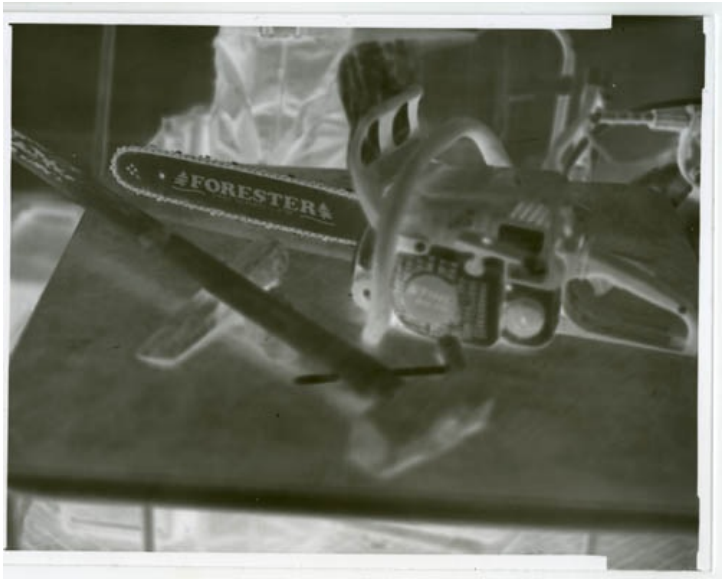
Shown Above - 5X7 / f-11@ 1/2 Sec (The Positive)

Shown Above - the 4X5 Using the Adapter (The Positive)

Shown Above - 5X7 / f-5.6@ 1/2 Sec (The Positive)

Shown Above - the 4X5 Using the Adapter (The Positive)

Shown Above - 5X7 / f-5.6@ 2 Sec (The Positive)



Shown Above - the 4X5 Using the Adapter (The Positive)

OK - As anyone might see - the 4X5's look that they were taken at a closer Distance. No - The same distance was used in each of the example images:

#1 - The 5X7, was focused at infinity. Using, f-11 @ 1 Second / ISO-6 -
As was the 4X5 as to compare with the 5X7

#2 - The 5X7, was focused at 15 Feet. Using, f-11 @ ½ of a Second / ISO-6 -
As was the 4X5 as to compare with the 5X7

#3- The 5X7, was focused at 5 Feet. Using, f-5.6 @ ½ of a Second / ISO-6 -
As was the 4X5 as to compare with the 5X7

#4- The 5X7, was focused at 4 Feet. Using, f-4.5 @ 3 Seconds / ISO-3
(As the subjects were in Shade.)
– Same goes for the 4X5 to compare with the 5X7.

I do think that this experiment went as expected and that this prototype will work as designed. I do have a few things to "iron-out" as for the exposure settings go. When developing the 4X5's I found that the times of development was HALF of the time it took for the 5X7's. This is a little odd to me as I used the same exact settings - the exact same developer, stop, and fixer solutions. (I must read MORE about this "problem" or, find a way around it.) The 5X7 images came in at a total full development of One Minute, as this is my usual time for my mix of 1:4 ratio of the Ansco -120 developer.

Be that as it may - I would feel comfortable in making use of this adapter in the field, as well as in my small studio at home.

The only thing now to do is to place a name on it and my "mark". :-))
Thank you for the reading of this D-I-Y project. Perhaps you might try something like this yourself and do a better job of it than is shown of this Prototype.

James R. Kyle - Photographer - Saint Louis, Missouri, U.S. of A.